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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/217.401	12/21/98	ISHIDA	K 884.088/US1

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EXAMINER

TRAN.T

ART UNIT

PAPER NUMBER

2841

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05/23/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/217,401	Applicant(s) ISHIDA ET AL.	
	Examiner Thanh Y. Tran	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/8/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,9-14 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-7,9-14 and 17-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 20) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4 and 20-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (US 4,620,761).

As to claim 1, Smith et al. disclose a mounting socket (see Fig. 9) comprising: a socket body (70) having a first side and a second opposite side, the body (70) having a plurality of vias extending therethrough (72 and 74); and a plurality of conductive terminals (80) within the vias (72 and 74), wherein the terminals (80) are adapted to be elastically compressible and exert a return force when compressed (see column 7, lines 23-30), the terminals comprising a coil (see Fig. 9, column 5, line 53) and a conductive polymer/material (see column 5, lines 53-56).

As to claim 4, Smith et al. disclose the conductive polymer/material (see column 5, lines 53-56) is injected within the vias.

As to claim 20, Smith et al. disclose an integrated circuit interconnection (see Fig. 9) comprising: the substrate (70) having a plurality of vias (72 and 74); and a plurality of elastically compressible terminals, the terminals comprising a coil (see Fig. 9, column 5, line 53) and a conductive polymer/material, the terminals adapted to exert a return force when compressed, each terminal positioned in a via (see Fig. 9).

As to claim 21, Smith et al. disclose a mounting socket (see Fig. 9) comprising: a socket body (70) having a first side and a second opposite side, the body (70) having a plurality of vias extending therethrough (72 and 74); and a plurality of conductive terminals (80) within the vias (72 and 74), wherein the terminals (80) are adapted to be elastically compressible and exert a return force when compressed (see column 7, lines 23-30), the terminals comprising a coil (see Fig. 9, column 5, line 53) and a conductive polymer/material (see column 5, lines 53-56), and a circuit board having a plurality of mounting areas, the mounting areas disposed in a plurality of interconnected planes (88) which are substantially non-planar with each other and wherein each terminal is individually compressible to contact its respective mounting area at the plane of the mounting area (see Fig 9, element 88).

As to claim 22, Smith et al. disclose a circuit assembly, comprising: a microprocessor (see column 4, lines 5-13), a substrate having a built-in socket (70) having a plurality of vias (72 and 78) therein, and a plurality of conductive terminals (80), the terminals are adapted to exert a return force when compressed, the terminals comprising a coil (see Fig. 9) and a conductive polymer/material, at least a portion of each terminal disposed within a via; and a motherboard (14) having a plurality of mounting areas (88) thereon, wherein each terminal is compressed to contact a mounting area (see Fig. 9).

As to claim 23, Smith et al. disclose the terminals (80) are adapted to accommodate for an uneven or warped substrate upon which the mounting socket is disposed (see Fig. 9).

As to claim 24, Smith et al. disclose the terminals (80) are solderless.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-7, 9-11 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. 4,620,749) in view of Stopperan (U.S. 5,719,749).

As to claims 5 and 7, Smith et al. disclose the instant claimed invention except for: a first and second adhesive layer affixed to the first and second sides of the body.

Stopperan discloses a mounting assembly (see Figs. 2-4) having a first adhesive layer (74) and a second adhesive layer (78) affixed to a first and a second sides of a body assembly (see Fig. 2).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the adhesive material molded in the mounting socket structure of Smith et al., for the purpose of securing strong attachment between the socket and the substrate.

As to claim 6, Smith et al. disclose the instant claimed invention except for: a polymer tape applied to the first adhesive layer; a ground and power line circuit laid on the polymer tape; and a second adhesive layer applied on and protecting the ground and power line circuit.

Stopperan discloses the mounting assembly (see Figs. 2-3) having the first adhesive layer formed by polymer (see column 9, lines 17-19) and a ground (82) and power trace circuit (see column 1, lines 44-46) laid on the polymer tape and the second adhesive layer applied on and protecting the ground and power line circuit (see Figs. 2-3).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the ground and power traces in Stopperan's the adhesive layer in Smith et al.'s mounting device, for the purpose of protecting the ground and the power lines from being electronic shocks.

As to claim 9, Smith et al. disclose a mounting a socket (26) to a board (10) having a plurality of elastically/resilient spring compressible conductive terminals (80) and adhering the socket (70) to the board (14) compressing the plurality of terminals (80) against complementary electrical contacts on the board the terminals comprising a coil (80) and a conductive polymer/material (see col. 5, lines 53-56), the terminals adapted to exert a return force when compressed.

Smith et al. disclose the instant claimed invention except for: applying an adhesive layer to a board side of the socket and leveling the adhesive layer to make the adhesive layer substantially coplanar with the terminals of the socket.

Stopperan discloses the adhesive layer (74) connecting to a board side of a socket (52) and leveling the adhesive layer to make the adhesive layer substantially coplanar with terminals (68) of the socket. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the adhesive layer in the mounting device of Smith et al., as taught by Stopperan, for the purpose of securing strong attachment between the socket and the board (substrate).

As to claim 10, Smith et al. disclose the instant claimed invention except for: a first and second adhesive layer affixed to the first and second sides of the body.

Stopperan discloses a mounting assembly (see Figs. 2-4) having a first adhesive layer (74) and a second adhesive layer (78) affixed to a first and a second sides of a body assembly (see Fig. 2). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the adhesive in the mounting socket structure of Smith et al., as taught by Stopperan, for the purpose of securing strong attachment between the socket and the board (substrate).

As to claim 11, Smith et al. disclose a mounting a socket (see Fig. 9) contacting to a board having a plurality of elastically coil spring (80) as compressible conductive terminals (80) comprising a coil (80) and a conductive polymer/material (see col. 5, lines 53-56), the terminals (80) adapted to exert a return force when compressed and the terminals against complementary electrical contacts on the board (see col. 6, lines 23-30).

Smith et al. disclose the instant claimed invention except for: applying a first and a second adhesive layers to a first package side and a second board side of the socket and leveling the first and the second adhesive layers to make the adhesive layer substantially coplanar with the terminals,

Stopperan discloses a mounting assembly (see Figs. 2-4) having the first adhesive layer (74) and the second adhesive layer (78) affixed to a first package side (60) and a second board side (28) of the socket assembly (see Fig. 2).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the adhesive material in the mounting socket structure of Smith et al., for the purpose of securing strong attachment between the socket and the board (substrate).

Stopperan further discloses the first and the second adhesive layers being leveled and the first and the second adhesive layers making the adhesive layers substantially coplanar with terminals (68) of the socket.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the adhesive layer molded in between the socket and the board of Smith et al., as taught by Stopperan, for the purpose of securing strong attachment between the socket and the board (substrate).

As to claim 18, Smith et al. disclose a substrate (70) having a plurality of conductive terminals (80), therethrough, the terminals (80) are adapted to be elastically compressible and exert a return force when compressed (see column 7, lines 23-30), the terminals comprising a coil (see Fig. 9, column 5, line 53) and a conductive polymer/material (see column 5, lines 53-56).

Smith et al. disclose the instant claimed invention except for: a first adhesive layer affixed to a first side of the substrate and a package affixed to the first adhesive layer.

Stopperan discloses a first adhesive layer (74) affixed to a first side of the substrate (52) and a package affixed to the first adhesive layer (see Fig. 2). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the adhesive layer in the mounting device of Smith et al., as taught by Stopperan, for the purpose of securing strong attachment to the board (substrate).

As to claim 19, Smith et al. disclose the instant claimed invention except for: a second adhesive layer affixed to a second side of the substrate, the second side opposite the first side.

Stopperan discloses a second adhesive layer (78) affixed to a second side of the substrate (22) and a package affixed to the first adhesive layer (see Fig. 2). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the adhesive layer in the mounting device of Smith et al., as taught by Stopperan, for the purpose of securing strong attachment to the board (substrate).

5. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (U.S. 4,705,205).

As to claim 12, Allen et al. disclose a circuit interconnect (Fig. 7), comprising: a circuit board carrier (32) having a plurality of through holes (39) formed therein; and a plurality of elastically compressible conductive terminals (see Fig. 13, element 62) with lands at each end (10, 12), each terminal disposed in one of the through holes (see Fig. 7, element 39), wherein the terminals are adapted to be elastically compressible and exert a return force when compressed, each terminal comprising a coil.

Allen et al. disclose the instant claimed invention except for: a conductive polymer. Smith et al. disclose circuit interconnect (see Fig. 9) which includes a conductive polymer/material (see col. 5, lines 53-56). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a conductive polymer/ material, as taught by Smith et al., for the purpose of reducing the product costs.

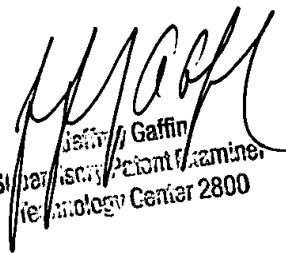
As to claim 13, Allen et al. disclose a first adhesive layer (see Fig. 10, element 46) affixed to a first side of the circuit board carrier, the first layer having openings (42) to expose the lands.

As to claim 14, Allen et al. disclose a second adhesive layer (46) affixed to a second side of the circuit board carrier and the second layer (46) having openings (as shown in Fig. 10) to expose the lands (10, 12), the second side opposite the first side.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (U.S. 4,705,205) in view of Smith et al. (U.S. 4,620,761)

As to claim 17, Allen et al. disclose the instant claimed invention except for: the conductive polymer is injected within the vias.

Smith et al. disclose the conductive polymer/material (see column 5, lines 53-56) is injected within the vias (72, 74). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the conductive polymer/material in Allen et al.'s mounting device, as taught by Smith et al., for the purpose of reducing the product costs.


Jeffrey J. Gaffin
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Technology Center 2800

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Y. Tran whose telephone number is (703) 305-4757. The examiner can normally be reached on Monday through Thursday and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TYT